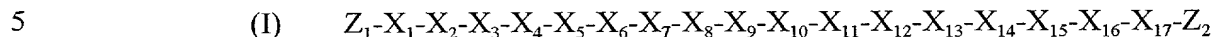


WHAT IS CLAIMED IS:

1. A compound comprising the formula:



wherein:

X_1 is an apolar residue;

X_2 is a hydrophobic residue;

10 X_3 is an acidic or an aliphatic residue;

X_4 is a basic residue;

X_5 is an apolar residue;

X_6 is an aromatic residue;

X_7 is a polar residue;

15 X_8 is an aliphatic residue;

X_9 is an acidic or an aliphatic residue;

X_{10} is an aromatic residue;

X_{11} is an aromatic residue;

X_{12} is a polar residue;

20 X_{13} is Ile;

X_{14} is an apolar residue;

X_{15} is an acidic residue;

X_{16} is a polar residue;

X_{17} is a basic or an aliphatic residue;

25 Z_1 is H_2N- , $RHN-$ or, $RRN-$;

Z_2 is $-C(O)R$, $-C(O)OR$, $-C(O)NHR$, $-C(O)NRR$ where each R is independently (C_1-C_6) alkyl, (C_1-C_6) alkenyl, (C_1-C_6) alkynyl, substituted (C_1-C_6) alkyl, substituted (C_1-C_6) alkenyl or substituted (C_1-C_6) alkynyl; and

“—” is a covalent linkage.

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2. The compound of Claim 1, wherein:

X_1 is an apolar amino acid;

X_2 is an aromatic amino acid;

X_3 is an acidic amino acid;

35 X_4 is a basic amino acid;

X₅ is an apolar amino acid;
 X₆ is an aromatic amino acid;
 X₇ is a polar amino acid;
 X₈ is a aliphatic amino acid;
 X₉ is a an acidic amino acid;
 X₁₀ is an aromatic amino acid;
 X₁₁ is an aromatic amino acid;
 X₁₂ is a polar amino acid;
 X₁₃ is Ile;
 X₁₄ is an apolar amino acid;
 X₁₅ is an acidic amino acid;
 X₁₆ is a polar amino acid;
 X₁₇ is a basic amino acid; and
 “—” is an amide, substituted amide or an isostere of amide thereof.

3. The compound of Claim 2, wherein:

X₁ is Gly;
 X₂ is Trp or Ala;
 X₃ is Asp or Ala;
 X₄ is His;
 X₅ is Met;
 X₆ is Phe;
 X₇ is Thr;
 X₈ is Val;
 X₉ is Asp or Ala;
 X₁₀ is Phe;
 X₁₁ is Trp;
 X₁₂ is Thr;
 X₁₃ is Ile;
 X₁₄ is Met;
 X₁₅ is Glu;
 X₁₆ is Asn; and
 X₁₇ is His or Ala.
 Z1 is H₂N;
 Z2 is -C(O)OH; and

“—” is an amide linkage.

4. The compound of Claim 3, wherein said compound is selected from the group consisting of SEQ ID NOS. 1-6.

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5. A pharmaceutical composition comprising the compound of Claim 1 and a pharmaceutical excipient carrier or an excipient.

6. A pharmaceutical composition comprising the compound of Claim 2 and a
10 pharmaceutical excipient carrier or an excipient.

7. A pharmaceutical composition comprising the compound of Claim 3 and a pharmaceutical excipient carrier or an excipient.

8. A method of inhibiting TfR binding to transferrin, comprising administering
15 to a subject a therapeutically effective amount of the compound of Claim 1.

9. A method of inhibiting TfR binding to transferrin, comprising administering
to a subject a therapeutically effective amount of the compound of Claim 2.

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10. A method of inhibiting TfR binding to transferrin, comprising administering
to a subject a therapeutically effective amount of the compound of Claim 3.

11. A method of treating an iron overload disease, comprising administering to a
25 subject a therapeutically effective amount of the compound of Claim 1.

12. A method of treating an iron overload disease, comprising administering to a
subject a therapeutically effective amount of the compound of Claim 2.

13. A method of treating an iron overload disease, comprising administering to a
30 subject a therapeutically effective amount of the compound of Claim 3.

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